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FACILITY INSTALLATION SPECIFICATION

Image Processing Systems Division
Environmental Research Institute of Michigan
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MSD/KRTA
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This report specifies the physical, electrical, and environmental requirements of the site for installation of upgrades to the Eglin AFB Image Data Automatic Processing System (IDAPS). Procedures for installation of this equipment are also presented.

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FACILITY INSTALLATION SPECIFICATION, CDRL B011

FOR TASK 2

OF THE IMAGE DATA AUTOMATED PROCESSING SYSTEM (IDAPS) UPGRADE

CONTRACT NUMBER F08635-89-C-0010

DEPARTMENT OF THE AIR FORCE
MUNITIONS SYSTEMS DIVISION
EGLIN AFB, FL   32542-5320

EFFECTIVE DATE OF CONTRACT: 15 MAY 1989
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1.0   INTRODUCTION

This document describes the installation requirements and planned installation procedures for IDAPS equipment designed or procured under Task 2 of contract F08635-89-C-0010.

Environmental requirements are presented in Section 2.0, and include power supply needs of the additional equipment. Measurements are provided in Section 3.0 for floor space, clearances, and weights. Section 4.0 describes the interfaces between the new IDAPS components and existing components. Installation support expectations are outlined in Section 5.0. This section covers issues related to utilization of Eglin personnel as well as ERIM responsibilities during installation. The last section outlines the step-by-step procedures to followed the effect installation of Task 2 upgrade components.

2.0 ENVIRONMENTAL CONDITIONS

The upgrades to IDAPS to be provided under Task 2 will be designed to operate in an air-conditioned laboratory environment having the following characteristics:

- ambient air temperature of 60-90 degrees F
- noncondensing relative humidities from 30-75 percent
- no shock or vibration greater than self-generated

When the equipment is powered-down and out of service the ambient temperature may be in the range of 0-130 degrees F.

Power required will be 60-cycle single-phase alternating-current at a nominal 120 volts. Current requirements are:

- existing IDAPS equipment: 29 amps
- additions to existing IDAPS rack: 1 amp
- HDDR equipment (dual-bay dolly): 26 amps
- disk subsystem (additional rack): 17 amps

Total potential AC current requirements: 73 amps. This will be most conveniently supplied with provision of two added 30-amp circuits similar to the one presently utilized for the existing IDAPS. The HDDR equipment dolly will require one of the additional 30-amp circuits. The other additional IDAPS equipment rack will require the other additional 30-amp circuit.

An additional heat load of up to 5280 watts will be imposed on the room where the IDAPS upgrades will be installed. The current IDAPS equipment produces a maximum of 3480 watts.

3.0 MEASUREMENTS

The dimensions, required clearances, and weight of all IDAPS equipment including Task 2 upgrades are listed below.

DIMENSIONS (INCHES):

Existing IDAPS desk:	60 wide x 30 deep x 48 high (incl. mos. & term)
Existing IDAPS rack:	23 wide x 38 deep x 78 high
Additional IDAPS rack:	23 wide x 38 deep x 78 high
HDDR dual-bay dolly:	46.25 wide x 30 deep x 77.25 high

DOOR SWINGS AND MINIMUM RECOMMENDED OPERATIONAL AND MAINTENANCE CLEARANCES (INCHES):

Behind all racks:	24
Behind desk:	12
Front of desk:	36
Front of all racks:	36
Cabinet side clearances:	0
Minimum Total Floor Area:	108 square feet

WEIGHTS:

Existing IDAPS desk:	260 lbs (with monitors and terminal)
Existing IDAPS rack:	420 lbs
Additional IDAPS rack:	500 lbs
HDDR dual-bay dolly:	1400 lbs
Floor loading capacity: (required)	300 lbs per square foot
Minimum ceiling height:	90 inches (exhaust air clearance)

Figure 1 shows the recommended equipment layout, and Figure 2 indicates the general locations of cable runs between racks and the operator's console. AC power cords are also shown on Figure 2.
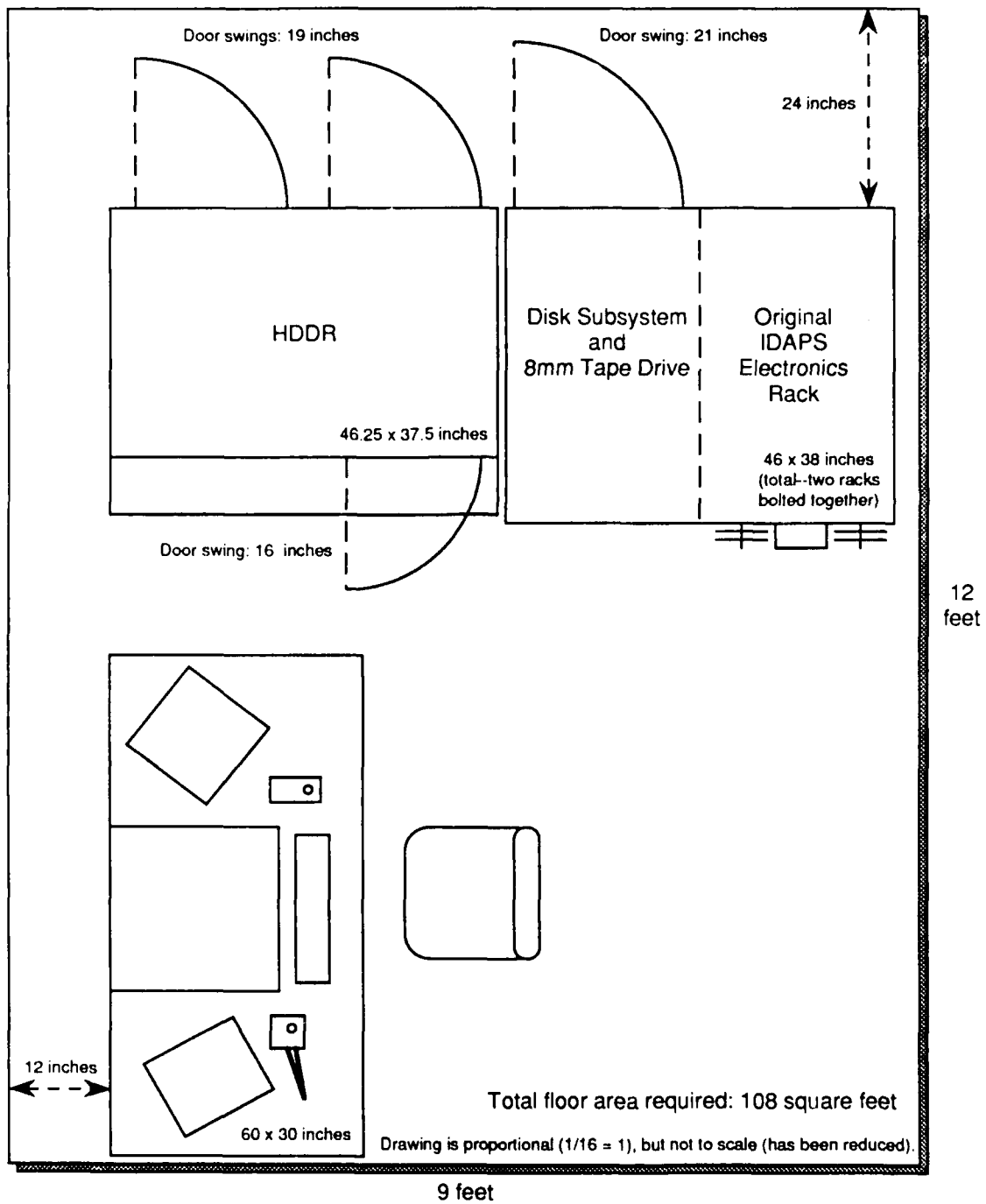
Door swings: 19 inches

Door swing: 21 inches

24 inches

HDDR

Disk Subsystem
and
8mm Tape Drive

Original
IDAPS
Electronics
Rack

46.25 x 37.5 inches

46 x 38 inches
(total--two racks
bolted together)

Door swing: 16 inches

12
feet

12 inches

Total floor area required: 108 square feet

60 x 30 inches

Drawing is proportional (1/16 = 1), but not to scale (has been reduced).

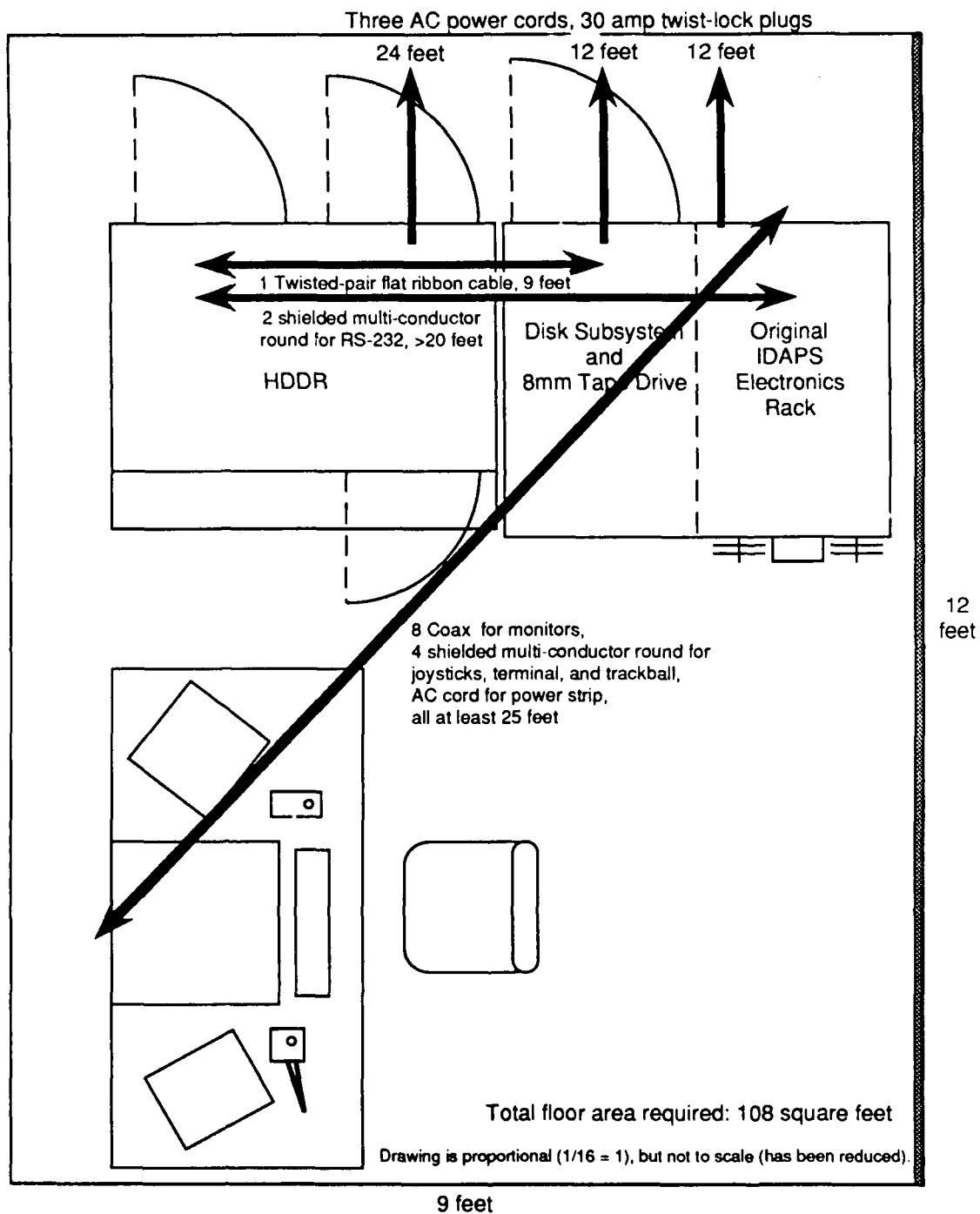9 feet

Figure 1. Recommended Equipment Layout

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Figure 2. Cable Runs and AC Power Connections

4.0 INTERFACES

Space is provided in the new rack containing the disk subsystem for a patch-panel. This patch panel (to be supplied by Eglin) allows reconfiguration of the routing of signals between the HDDR decode/deskew units and the EDAC unit, and also can alter the routing of outputs from the EDAC unit to the IDAPS data interface. ERIM will supply separate cables for making these connections without a patch-panel for each tape data format required. Should Eglin chose to integrate a patch-panel into this system, new cables will be required and must be supplied by Eglin. An I/O panel has been constructed by ERIM and placed in the HDDR rack to facilitate cabling for the various tape formats. Figure 3 shows this I/O panel. Eglin may choose to construct cables for patch panel connections to connect with this I/O panel, or optionally may choose to construct cables that go directly to the various chassis in the HDDR.

No additional external interfaces exist and no changes to external interfaces will occur for the upgrades to be integrated into the existing IDAPS. The one existing interface to non-IDAPS equipment, a DECNet Ethernet connection to the IDAPS MicroVAX, will remain as it is now. Several new interfaces will exist within the upgraded IDAPS. Figure 4 highlights the interfaces that connect the upgrade equipment with the existing IDAPS. All necessary cables for new interfaces within IDAPS will be supplied and installed by ERIM.
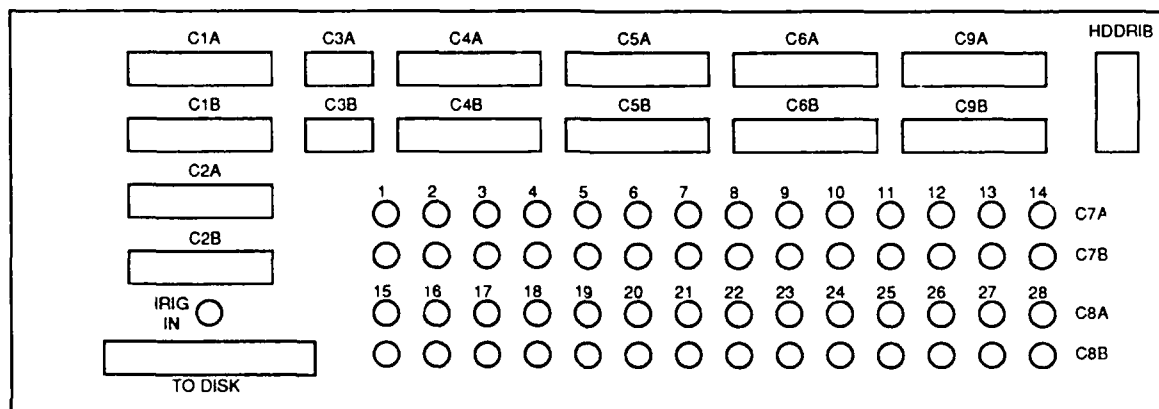
Connections between HDDR Interface board and EDAC J1 & J2 are made with the following connector pairs: C1A,C1B; C2A,C2B; C3A,C3B; C4A,C4B; C5A,C5B.

Connections between Decode/Deskew chassis (J17,J50) and EDAC (J5,J9) are made through connector pairs: C6A,C6B; C7A(1,14),C7B(1,14).

Connections between Decode/Deskew chassis (J17,J50) and EDAC (J6,J10) are made through connector pairs: C9A,C9B; C8A(15,28),C8B(15,28).
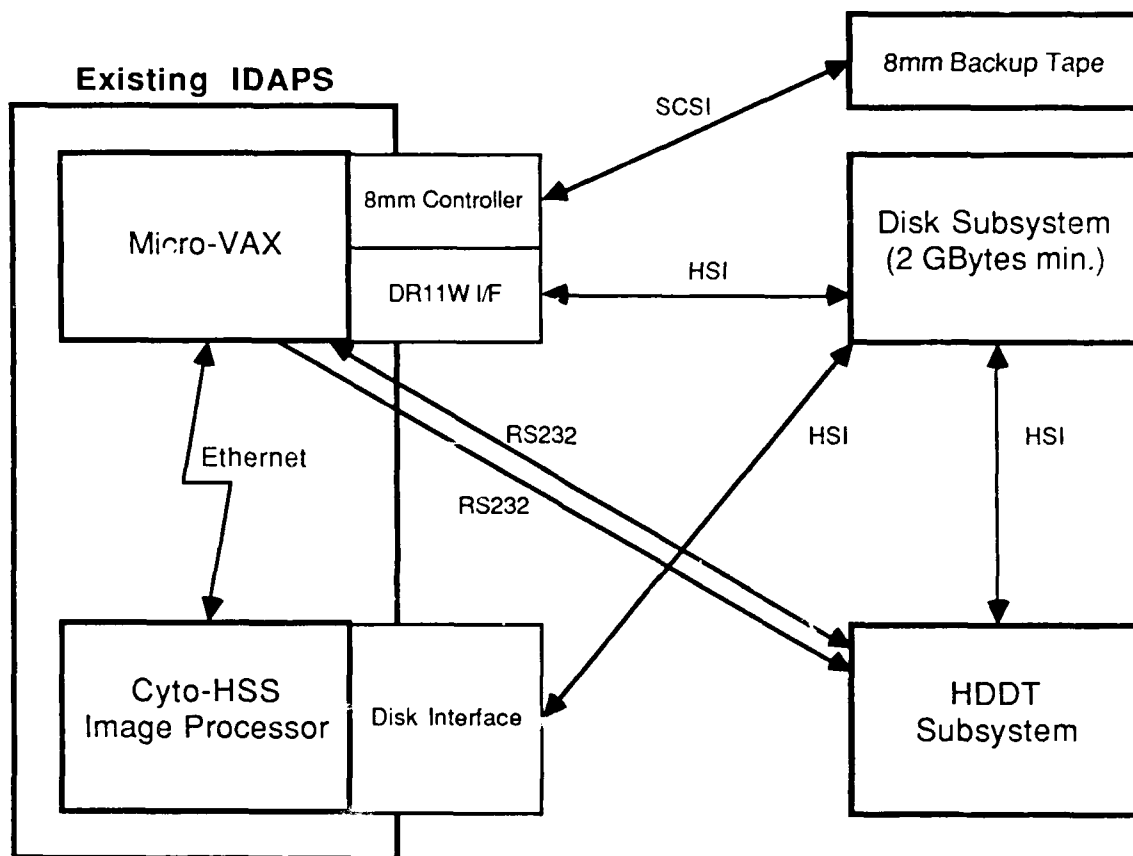
Figure 3. HDDR I/O Panel

Existing IDAPS

Figure 4. Interfaces Between Existing IDAPS and Upgrade Equipment

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5.0 INSTALLATION SUPPORT

ERIM will pack and ship all IDAPS upgrade equipment via commercial carrier upon completion of initial acceptance testing at ERIM's Ann Arbor facility.

Upon equipment arrival at Eglin AFB, Eglin will provide manpower and equipment necessary to move equipment to its laboratory position. Crating of the HDDR rack and the disk subsystem rack is not planned. Both of these racks have casters. In addition to the two racks, no more than two additional boxes are planned for shipment of cables, circuit boards, and miscellaneous tools, equipment, and documentation.

ERIM personnel will perform on-site installation procedures with the assistance and oversight of cognizant Eglin personnel. After the completion of system set-up and check-out, the final system acceptance tests will be conducted. These tests will consist of the same tests and procedures previously conducted at ERIM prior to shipment.

During installation, the existing IDAPS system must be fully available to ERIM personnel for integration and testing of new hardware and software. A minimum of three days for completion of installation is anticipated.

6.0 INSTALLATION SCHEDULE

ERIM's proposed schedule for shipment and installation is as follows:

- Determination is made by 24 August 1990 that all is in order and shipment may proceed.
- Commercial moving company picks up equipment on either 30 or 31 August 1990.
- Delivery has been guaranteed within one week of pickup. This places the equipment on Eglin's dock no later than Friday, 7 September 1990.
- ERIM personnel will be at Eglin on Monday, 10 September 1990 to begin installation procedures.
- Installation and checkout will take a minimum of two working days.
- Acceptance testing will take approximately one day. Installation is complete upon successful execution of all acceptance tests.

Training is not planned to occur immediately following installation. Training in operations, programming, and maintenance of the system upgrades is planned for the week of 24 September 1990.

7.0 INSTALLATION PROCEDURES

Test and verify existing IDAPS equipment:

1. Verify current functionality of existing IDAPS equipment. (Run tests, exercise GADS, verify with users that system has been functioning correctly.)

Gross positioning of equipment and external cabling:

1. Move racks from loading dock and place in approximate position in the lab. (Eglin is encouraged to do this as soon as the equipment arrives and prior to the arrival of ERIM installation personnel.)

2. Bolt Disk Subsystem rack to existing IDAPS rack.

3. Determine whether cable routing under raised floor is appropriate, and if so, obtain tiles with cutouts in appropriate positions.

4. Lay cables under floor and re-install floor tiles.

5. Position racks and operator's console in final positions.

6. Reconnect existing IDAPS equipment and verify continued satisfactory operation.

MicroVAX modifications:

1. Upgrade MicroVAX to VMS 5.3-1.

2. Load all software on Eglin's VAX.

3. Compile and link Strategy 1 disk driver.

4. Transfer to MicroVAX and install driver software.

5. Disassemble MicroVAX and install DR11W interface board for Strategy disk and controller card for 8mm tape drive. Adjust board slot positions and CSR jumpers as needed. Reassemble MicroVAX.

6. Power-up Strategy 1 disks and controller with a terminal connected to the controller and run self tests.

7. Power-up MicroVAX and exercise the Strategy 1 disk subsystem to verify correct operation.

8. Perform a backup operation to the 8mm tape drive to verify functionality.

Other MicroVAX system modifications:

1. Configure default parameters for additional serial ports to be utilized for connections to new equipment.

2. Set up new system logical names.

Install software:

1. Compile all new software on Eglin's VAX.

2. Make directory structure modifications and move files as needed to prepare for loading new software.

3. Transfer new software from Eglin VAX to MicroVAX.

4. Test C4PL and GADS to verify correct operation.

Cyto-HSS Disk Interface board:

1. Install -5VDC power supply in existing IDAPS rack.

2. Install Disk Interface board in Cyto-HSS card rack.

3. Verify correct operation.

Connect HDDR:

1. Connect HDDR Interface Subsystem to Strategy 1 disk controller, and install serial cables between MicroVAX and transport control and between MicroVAX and HDDR Interface.

2. Verify operation with an archive write/read sequence.

Execute acceptance tests:

1. Execute and verify successful completion of all defined acceptance tests.